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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/074,061	02/11/2002	Donald C. Soltis JR.	10016639-1	6701

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EXAMINER

PAN, DANIEL H

ART UNIT	PAPER NUMBER
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2183

DATE MAILED: 02/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/074,061	SOLTIS ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Daniel Pan	2183	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-16 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

1. Clams 1-16 are presented for examination.
2. Claims 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iadonato et al. (5,371,684) in view of Clift (6,598,149) .
3. As to claim 7, no changed ahs been made in cliam7. Discussions in response to applicant's remark will follow.
4. Claims 4, 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. (5,826,055) in view of Clift (6,598,149).
5. As to claims 4,5 , no change in scope has been made in claims, 4, 5.
6. The rejections to claims 4,5,7 have been maintained and incorporated by reference the last Office action on 09/07/04.
7. The response by applicant field on 12/07/04 have been fully considered but it is not persuasive.
8. In the remarks, applicant argued that :
  - a) Wang and Clif did not teach the aliasing as claimed;
  - b) Iadonato did not disclose the register identifier overlap.
9. As to a) above, Wang disclosed register alias table (see page 2 of cited publication in Wang) as his background of his invention , therefore, Wang was directed to aliasing. Clif also taught aliasing floating point registers (see col.3, lines 4-25).
10. As to b) above, no specific format of the overlap has been reflected into the claim, therefore, the "overlap" is read as any match of register address or identification by comparison. Iadonato did disclose the comparison of resource registers with the previous destination register addresses (see col.5, lines 34-36).

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11. Iadonato et al. (5,371,684) , Clift (6,598,149), Wang et al. (5,826,055) were already cited to the applicant in a previous action, therefore, copies are not provided.

12. Applicant's arguments with respect to claims 1-3, 8-13 have been considered but are moot in view of the new ground(s) of rejection.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1,3,8-12,15-16 are rejected under 35 U.S.C. 102(a) as being anticipated by Panwar (5,884,070).

14. As to claim 1, Panwar disclosed at least :

a) identifying a first group of registers within register file (see the register ID of odd numbered registers fig.1A);

b) aliasing the first group of registers to first identifiers (see the odd numbered register id and registers in fig.1B);

c) detecting data hazard (dependencies) associated with the e first identifiers (see col.3, lines 65-67, col.4, lines 1-14, see col.8, lines 17-54)

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d) identifying a second group of registers in the register file (see even numbered registers and lds in fig.1A);

e) aliasing the second group of registers to second registers identifiers (see even numbered lds and registers in fig.1B);

f) detect hazard associated with second register identifiers (see col.3, lines 39-57 , col.8, lines 17-54) wherein the first and second register identifiers overlap in hazard detect logic across two m or more rows in the register file (see the odd and even identifiers in fig.1B).

15. As to claim 8, Panwar taught :

a) aliasing each register identifier of a group of register identifiers to two or more registers (see the aliaised registers in fig.1B);

b) determining data hazard within the register file by presenting one or more register identifiers (see the determination of data dependencies in col.3, lines 39-67, col.4, lines 1-19).

16. As to claim 9, Panwar also mapped non-overlapping registers (see f4 and f5 in fig.1B).

17. As to claim 10, Panwar also included two more rows in hazard detection logic (see dependencies detection in col.3, lines 39-67, col.4, lines 1-19).

18. As to 11, see the fewer possible dependencies in col.8, lines 49-54, col.10, lines 34-37.

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19. As to claim 12, Panwar also included 32 register identifiers (see fig.1A f0-f31).

20. As to claim 15, Panwar disclosed :

a) aliasing each register ID within hazard detection logic to tow or more registers of a register file (see fig.1B);

b) determining the data hazard by matching register ID within the detection (see the dependencies detection in col.3, lines 25-67, col.4, lines 1-19, col.8, lines 17-54).

21. AS to claim 16, Panwar disclosed :

a) aliasing two groups of registers of a register file to one group of register ID (see the odd and even registers in fig.1B);

b) detecting data hazard associated with the first and second register by comparing the first aliased register ID to second aliased ID within the hazard detection (see dependencies detection identified by operand identifiers and the possible dependencies in aliased f4 and f5 registers in col.3, lines 25-67, col.4, lines 1-19, col.8, lines 17-54);

wherein each register ID aliased to one register of each of the register groups (see odd and even registers, both f4 and f5 aliased to f4 register ID), the two groups of registers overlapped in hazard detection logic (see fig.1B).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

22. Claims 2,13,14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Panwar (5,884,070) in view of Dye (5,706,478) .

23. As to claims 2, 13, Panwar also included :

a) aliasing at least one entry of the register ID file to two or more registers of the register file (see fig.1B);

b) valuating matches between entries of the register ID files in the hazard detection logic without distinguishing between common aliased entries of the register file ( see no distinguishing of the common aliased entries in fig.1B, both addresses referring to the same datum in col.2, lines 50-57, see the dependencies detection in col.3, lines 25-67, col.4, lines 1-19, col.8, lines 17-54).

24. Panwar did not show the 128-regsiter register file (claim 2), nor the selecting of register file size (claim 13) as claimed. However, Dye disclosed a system including a register file comprising 128 registers (e.g. see col.7, lines 47-50 [205] ). It would have been obvious to one of ordinary skill in the art to use Dye in Panwar for selecting a 128-register register file as claimed because the use of Dye could provide Panwar the capability to adapt to a greater number of the storage capacity , and because Panwar was also directed to the processing of numeric precision method, which was a

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suggestion of the need of more storage capacity into the register file of Panwar in order to meet the larger scale processing, and for the above reasons, provided a motivation.

25. As to 14, see the fewer possible dependencies in col.8, lines 49-54, col.10, lines 34-37.

26. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. None of the prior art of record further teaches the mapping of the sequential 32 –registers with common hazard logic to more than 32 stacked registers of the register file to alias in 32-register sequences.

Applicant's amendment (see paragraph 11-24) necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.



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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dan Pan whose telephone number is 703 305 9696, or the new number 571 272 4172. The examiner can normally be reached on M-F from 8:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chan, can be reached on 703 305 9712, or the new number 571 272 4162. The fax phone number for the organization where this application or proceeding is assigned is 703 306 5404.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*21 Century Strategic Plan*

DANIEL H. PAN  
PRIMARY EXAMINER  
GROUP 1